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Factors of Compressor Formulas

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List of 12 Factors of Compressor Formulas

Factors of Compressor

1) Clearance factor in compressor

Open Calculator

fx $$C = \frac{V_c}{V_p}$$

ex $$0.01 = \frac{0.1\text{m}^3}{10\text{m}^3}$$

2) Clearance Volume given Clearance Factor

Open Calculator

fx $$V_c = C \cdot V_p$$

ex $$0.1\text{m}^3 = 0.01 \cdot 10\text{m}^3$$

3) Compression Ratio given Pressure

Open Calculator

fx $$r = \frac{P_2}{P_1}$$

ex $$4.75 = \frac{8\text{Bar}}{1.68421052631579\text{Bar}}$$

4) Compression Ratio given Volume

Open Calculator

fx $$r = \frac{V_s}{V_2}$$

ex $$4.75 = \frac{20\text{m}^3}{4.210526\text{m}^3}$$

5) Discharge Pressure given Compression Ratio

Open Calculator

fx $$P_2 = r \cdot P_1$$

ex $$8\text{Bar} = 4.75 \cdot 1.68421052631579\text{Bar}$$

6) Discharge Volume given Compression Ratio

Open Calculator

fx $$V_2 = \frac{V_s}{r}$$

ex $$4.210526\text{m}^3 = \frac{20\text{m}^3}{4.75}$$

7) Piston Displacement Volume given Clearance Factor

Open Calculator

fx $$V_p = \frac{V_c}{C}$$

ex $$10\text{m}^3 = \frac{0.1\text{m}^3}{0.01}$$

8) Piston Displacement Volume given Volumetric Efficiency in Compressor

Open Calculator

fx $$V_p = \frac{V_s}{\eta_v}$$

ex $$10\text{m}^3 = \frac{20\text{m}^3}{2}$$

9) Suction Pressure given Compression Ratio

Open Calculator

fx $$P_1 = \frac{P_2}{r}$$

ex $$1.684211\text{Bar} = \frac{8\text{Bar}}{4.75}$$

10) Suction Volume given Compression Ratio

Open Calculator

fx $$V_s = r \cdot V_2$$

ex $$20\text{m}^3 = 4.75 \cdot 4.210526\text{m}^3$$

11) Suction Volume given Volumetric Efficiency in Compressor

Open Calculator

fx $$V_s = \eta_v \cdot V_p$$

ex $$20\text{m}^3 = 2 \cdot 10\text{m}^3$$

12) Volumetric efficiency in compressor

Open Calculator

fx $$\eta_v = \frac{V_s}{V_p}$$

ex $$2 = \frac{20\text{m}^3}{10\text{m}^3}$$

Variables Used

- **C** Clearance Factor
- **P_1** Suction Pressure *(Bar)*
- **P_2** Discharge Pressure of Refrigerant *(Bar)*
- **r** Compression Ratio
- **V_2** Discharge Volume *(Cubic Meter)*
- **V_c** Clearance Volume *(Cubic Meter)*
- **V_p** Piston Displacement Volume *(Cubic Meter)*
- **V_s** Suction Volume *(Cubic Meter)*
- **η_v** Volumetric Efficiency

Constants, Functions, Measurements used

- Measurement: **Volume** in Cubic Meter (m^3)
  Volume Unit Conversion
- Measurement: **Pressure** in Bar (Bar)
  Pressure Unit Conversion

Check other formula lists

- Factors of Compressor Formulas
- Minimum Work Formulas
- Power Required Formulas
- Volume Formulas
- Work Done by Single Stage Compressor Formulas
- Work Done by Two Stage Compressor Formulas

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